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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,549	06/30/2003	J. Christopher Matayabas JR.	42P16901	4992

7590 05/31/2006  
Todd M. Becker  
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EXAMINER

HA, NATHAN W

ART UNIT PAPER NUMBER

2814

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/611,549	Applicant(s) MATAYABAS ET AL.	
	Examiner Nathan W. Ha	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 9 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-6 and 9 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 03 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

1. Cancellation of claims 10-19 is acknowledged.

### *Drawings*

The new set of replacement drawings is accepted.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Long et al. (US 5,087,961, newly cited, hereinafter Long.)

In regard to claim 1, in fig. 7, Long discloses an apparatus comprising:

a die 24 mounted on a substrate 14, the die being connected to the substrate by a plurality of wires 26; see also, col. 3, lines 30-35; and

a mold cap encapsulating the die and the plurality of wires, the mold cap comprising an electrically insulating portion 28 encapsulating substantially all the wires and the die (col. 3, lines 40-43), and a thermally conductive portion 52 encapsulating substantially all the electrically insulating portion, wherein the thermally conductive material is in contact with the entire part of the surface of the electrically insulating

material that is not in contact with the substrate, the die, or the wires. See also col. 4, lines 19-22.

In regard to claim 2, the die inherently comprises IC circuits. The term die means IC die, Integrated Circuit die, or memory die.

In regard to claim 3, Long further discloses that the electrically insulating material is a curable resin, silicon gel, for example. See col. 3, lines 39-44.

In regard to claim 5, Long further discloses that the thermal insulating material is resin curable material. See col. 5, lines 20-33.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long as applied to claims 1-3 and 5 above, and further in view of Distefano (US 6,309,915, previously cited.)

In regard to claims 4 and 6, Lin discloses all of the claimed limitations as mentioned above except the materials of the filler such as silica, metal.

Distefano, in fig. 7, discloses an analogous semiconductor package including a substrate 5, IC die 2 mounted on the substrate, and further discloses filler 3, for example, that comprises highly thermal conductive fillers such as silver, silica, epoxy,

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etc., in order to prevent the package from overheating since these fillers are highly thermal conductive materials, therefore, heat will be dissipated from the package quickly. See col. 7, line 63- col.8, line 15. These are common fillers, however.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use fillers as taught by Distefano in Long's patent in order to dissipate heat from the package, therefore, preventing the package from overheating.

In regard to claim 9, Distefano further discloses a heat dissipation device 10, or heat sink, attached to the package, and in thermal contact with the thermally conductive material, see fig. 4. This heat sink further enhances heat dissipation from the package, and it is very common in the art of semiconductor packaging.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach a heat sink to the package as taught by Distefano in order to keep the package under appropriate temperature, and further prevent the package from damage due to overheating.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-6 and 9 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

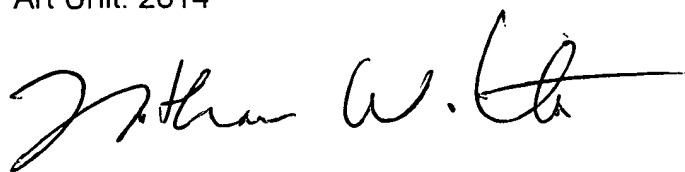
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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A handwritten signature in black ink, appearing to read "Nathan W. Ha", with a long horizontal stroke extending to the right.

Nathan Ha

May 23, 2006